

22d.—High wind delayed traffic and caused some damage to shipping about New York City and on Long Island Sound.

23d.—A report from Abilene, Tex., stated that the rainfall of the preceding five days, 5.66 inches, exceeded by 1.00 inch the greatest depth of rainfall recorded at that station for a like period in October; streams overflowed and roads were almost impassable.

23d-25th.—Northeast gales prevailed along the Carolina coasts.

27th.—At New Orleans, La., a church steeple was struck by lightning. At Wilgus, Ariz., a house was blown down.

28th.—An exceptionally heavy thunderstorm occurred in the mountains northeast of Pasadena, Cal.; some hail fell, and heavy rain swelled streams, causing some damage.

28-29th.—Heavy gales prevailed on the Great Lakes. About 40 vessels were wrecked or damaged, and much damage was caused in the interior. At Milwaukee, Wis., fire driven by high northwest wind destroyed property to the estimated value of \$5,000,000 on the 28th. At Marquette, Mich., the wind reached a velocity of 46 miles per hour from the north at 7.06 p. m. of the 28th, and continued to blow heavily until the morning of the 29th; the storm was reported the severest ever experienced at that station. A schooner was wrecked 9 miles south of Manistee, Mich. At Chicago, Ill., the wind shifted to northwest and reached a velocity of 58 miles per hour at 4 p. m., 28th, causing damage of a minor character.

At Red Wing, Minn., the wind reached a velocity of 48 miles per hour from the northeast at 9.23 a. m.; the storm was reported the severest of the season at that place. At Alpena, Mich., the gale began 5.20 p. m., 28th, and ended 1.45 p. m., 29th; vessels were detained, and a number of wrecks were reported. At Grand Haven, Mich., a southwest gale began the afternoon of the 28th; the wind shifted to west at 5 p. m., reached a velocity of 52 miles per hour at 11.07 p. m., and continued during the 29th; a schooner was wrecked near Muskegon, and the captain was drowned; and much damage of a minor character was caused in the city.

At Detroit, Mich., the gale began 8 a. m. of the 28th with a gust of wind reaching 45 to 60 miles per hour, and continued until 1.13 p. m. of the 29th. The storm was reported the most destructive in two years. The wind lowered the water in the river at Detroit 4 feet, and the water in Lake Saint Clair was lowered 2 feet. At Toledo the wind reached a velocity of 42 miles per hour at 2.17 a. m. of the 29th. At Sandusky, Ohio, a northwest gale during the 29th lowered the water in the bay 5 feet, grounding several vessels. At Cleveland, Ohio, the wind reached a velocity of 60 miles per hour from the northwest on the 29th; 3 steamers, 5 barges, and 2 schooners went ashore in the harbor. At Buffalo, N. Y., the wind reached a velocity of 42 miles per hour from the west at 12.54 a. m. of the 29th; vessels were delayed.

29th.—At Newburyport, Mass., a thunder, rain, and hail storm prevailed from 5 to 5.30 p. m., causing some damage.

INLAND NAVIGATION.

STAGE OF WATER IN RIVERS.

The following table shows the danger-points at the various river stations; the highest and lowest stages for the month, with the dates of occurrence, and the monthly ranges:

Heights of rivers above low-water mark, Oct., 1892 (in feet and tenths).

Stations.	Danger-point on gauge.	Highest water.		Lowest water.		Monthly range.
		Height.	Date.	Height.	Date.	
<i>Red River.</i>						
Shreveport, La.	29.9	7.3	31	1.9	13, 14	9.2
<i>Arkansas River.</i>						
Fort Smith, Ark.	22.0	10.2	24	0.7	14	9.5
Little Rock, Ark.	23.0	11.4	27	5.4	14	6.0
<i>Missouri River.</i>						
Fort Buford, N. Dak.		5.4	26, 27	4.9	1	0.5
Bismarck, N. Dak.		1.8	13	1.5	6, 27-29	0.3
Pierre, S. Dak.	14.0	0.7	16, 17	0.2	31	0.9
Sioux City, Iowa	18.7	7.0	19	4.5	31	2.5
Omaha, Nebr.	18.0					
Kansas City, Mo.	21.0	7.1	24	5.0	11, 12, 17	2.1
<i>Mississippi River.</i>						
Saint Paul, Minn.	14.0	3.1	2	2.2	29-31	0.9
La Crosse, Wis.	11.8	2.4	1	1.8	29, 31	0.6
Dubuque, Iowa	16.0	3.4	1	2.7	16, 17	0.7
Davenport, Iowa	15.0	2.4	1	1.6	14	0.8
Keokuk, Iowa	14.0	2.3	2	1.3	15, 18-20, 22-27	1.0
Hannibal, Mo.	17.0	3.3	1, 2	2.2	21-27, 30	1.1
Saint Louis, Mo.	30.0	6.8	1, 2	5.0	18, 19, 24, 25	1.8
Cairo, Ill.	40.0	6.7	1, 4	3.9	27-30	2.8

Heights of rivers—Continued.

Stations.	Danger-point on gauge.	Highest water.		Lowest water.		Monthly range.
		Height.	Date.	Height.	Date.	
<i>Mississippi River—Continued.</i>						
Memphis, Tenn.	33.0	4.9	1	1.7	29-31	3.2
Vicksburg, Miss.	41.0	5.2	1, 2	1.0	30	6.2
New Orleans, La.	13.0	5.0	2	3.0	31	2.0
<i>Ohio River.</i>						
Parkersburg, W. Va.	38.0	2.3	11	1.0	30, 31	1.3
Cincinnati, Ohio	45.0	6.0	1	3.6	29, 31	2.4
Louisville, Ky.	24.0	3.8	2	2.4	29-31	1.4
<i>Cumberland River.</i>						
Nashville, Tenn.	40.0	1.9	1, 3	0.1	27-31	2.0
<i>Tennessee River.</i>						
Chattanooga, Tenn.	33.0	2.2	1	1.1	26-31	1.1
Knoxville, Tenn.	29.0					
<i>Monongahela River.</i>						
Pittsburg, Pa.	29.0	6.0	1	5.0	27	1.0
<i>Savannah River.</i>						
Augusta, Ga.	32.0	7.3	2	5.9	17	1.4
<i>Willamette River.</i>						
Portland, Oregon	15.0	3.0	8	0.6	31	2.4
<i>Susquehanna River.</i>						
Harrisburg, Pa.	17.0	1.4	3	0.5	31	0.9
<i>Alabama River.</i>						
Montgomery, Ala.	48.0	2.3	1	0.7	27-31	1.6

The stage of water in the Ohio River and tributaries and in streams of the east Gulf states was very low throughout the month.

ATMOSPHERIC ELECTRICITY.

THUNDERSTORMS.

Description of the more severe thunderstorms reported for the month is given under "Local storms."

Thunderstorms were reported as follows: East of the Rocky Mountains they were reported in the greatest number of states, 16, on the 4th; in 10 to 15 on the 1st, 3d, 7th, 8th, 12th, 13th, 14th, and 17th; in 5 to 9 on the 2d, 5th, 10th, 11th,

16th, 18th, 19th, 20th, 29th, 30th, and 31st; and in 1 to 4 on the 6th, 9th, 15th, 21st, and 23d to 28th. The 22d was the only date on which thunderstorms were not reported.

East of the Rocky Mountains thunderstorms were reported on the greatest number of dates, 21, in Texas; on 12 in Florida; on 5 to 10 in Colorado, Illinois, Indiana, Iowa, Kansas, Louisiana, Michigan, Minnesota, Missouri, Nebraska, New York, Ohio, Oklahoma, Pennsylvania, South Dakota,